

**MARTIN-MARIETTA CORPORATION**

**MODELS:** Martin (Navy), PBM-5 (Approved 6/6/47)

**SPEC. NUMBER:** L-20-2

(Eligible for certification in Limited Category only.)

(Holder of Limited Type Certificate: Carl F. Krogmann, Washington, D.C.)

Engines	2 Pratt & Whitney R-2800-22 or -34
Fuel	Grade 100/130
Engine limits	R-2800-22: Maximum, except take-off (low blower): (Sea level) 44.5 in.Hg., 2600 rpm (1700 hp) (7000 ft.) 42 in.Hg., 2600 rpm (1700 hp) Maximum, except take-off (high blower): (8000 ft.) 43.5 in.Hg., 2600 rpm (1450 hp) (18,500 ft.) 42 in.Hg., 2600 rpm (1450 hp) (Take-off (five minutes) 55 in.Hg., 2800 rpm (2100 hp) R-2800-34: Maximum, except take-off (low blower): (Sea level) 44 in.Hg., 2600 rpm (1700 hp) (8000 ft.) 41.5 in.Hg., 2600 rpm (1700 hp) or (Sea level) 44 in.Hg., 2500 rpm (1700 hp) (6500 ft.) 42 in.Hg., 2500 rpm (1700 hp) Maximum, except take-off (high blower) (11,500 ft.) 43.5 in.Hg., 2600 rpm (1500 hp) (18,000 ft.) 42.2 in.Hg., 2600 rpm (1500 hp) (10,000 ft.) 43 in.Hg., 2500 rpm (1500 hp) (16,000 ft.) 42 in.Hg., 2500 rpm (1500 hp)
Propellers	Curtiss C642S-B46 hub; 836-17C2-0 blades 14'8" diameter (See NOTE 2b) Hamilton Standard 33E60 hub 6491A-0 blades 15'2" diameter
Airspeed limits	(See NOTE 2) Glide or dive 242 mph
Maximum weight	50,000 lbs.
C.G. range	31 percent MAC to 35 0/0 MAC (Reference Navy T.O. 4-46, 1/18/46)
Datum	Forward point of nose section
MAC	159.7 inches L.E. MAC 319.0 inches
Other Operating	Technical Note 70-45, Technical Order 87-45 and
Limitations:	Technical Order 4-46
Certification basis	Limited Type Certificate No. 20 (CAR 9 effective 11/21/46)
Production basis	None may be produced under this approval
Export eligibility	Not eligible for a Certificate of Airworthiness for Export

**Equipment:**

No equipment other than engines and propellers are specified. However, such equipment as required by Civil Air Regulations Part 43.30 for the particular operation authorized for NC aircraft must be installed. Also, any additional equipment necessary for the proper operation of the aircraft.

In addition, the aircraft may incorporate such military equipment (except

armament) as was originally incorporated in the type for military or naval service. Additional equipment may be installed as can be substantiated on the basis that it presents no obvious hazard to safety.

NOTE 1. Weight and Balance Report including list of equipment included in the certificated empty weight must be submitted for each aircraft. Army or Navy weight records in current condition may be submitted in lieu of an actual weight. The equipment list need include no more than the following:

- (a) Required equipment as defined under "Equipment" above.
- (b) Additional items as may be reasonably considered removable and are so located or of such weight that their removal or addition could noticeably affect the weight and balance of the aircraft. Item built into the aircraft structure need not be listed. The equipment list must be prepared by the applicant for the approval of the certifying C.A.A. representative, and in such form that it can be attached to the C.A.A. Operation Limitations.

NOTE 2. The following placards must be prominently displayed in the positions indicated:

- (a) In full view of passengers: "This is a military type aircraft and under the Civil Air Regulations shall not be used for the carriage of passengers or cargo for compensation or hire."
- (b) In the cockpit in full view of the pilot:
  - "Do not exceed 127 mph with flaps extended."
  - "Avoid continuous engine operation between 2150 and 2300 rpm."
  - (Applies only to airplanes with Curtiss propellers.)
  - "No acrobatics permitted."

NOTE 3. The following statement must appear on the Operation Limitation:  
"This airplane must be operated at all times within the limitations set forth in Navy Technical Note No. 70-45 and Navy Technical Orders Nos. 87-45 and 4-46 except for limitations specifically called out in Aircraft Specification AL-20 in which case the values given in the Specification must be observed. A copy of Navy Technical Order and Aircraft Specification AL-20 must be carried during flight." In all cases, it will be the responsibility of the applicant to secure copies of the Navy Technical Orders. The C.A.A. does not have these documents available for distribution.

NOTE 4. If any repairs or modifications are made prior to and/or subsequent to NL certification, it is the responsibility of the owner to furnish sufficient evidence to a C.A.A. representative to show that the modified airplane maintains the same degree of airworthiness as the original. The C.A.A. can give no technical assistance on such matters since complete structural data for NL aircraft are not required by Part 9 and therefore are not available in the C.A.A.

NOTE 5. Prior to obtaining certification for night operation, the following modifications to the exterior lighting must be made in order to comply with the general requirements of the Civil Air Regulations.

- (1) Position Lights
  - (a) Wing Tip - The AN-3033-9 or AN-3033-1 through -4 or the AN-3032-1 through -4 light assemblies are satisfactory without modification.
  - (b) Tail - If Type D-1 (AN-3091-1 through -3) or the Type D-2 (AN-3092-1 through -3) light assembly is installed on the tail cone it must be replaced with a type certificated unit.
- (2) Position Light Installation  
The position lights shall be installed to comply with the requirements of the CAR, Parts 15.2 and 3.538.
- (3) Position Light Circuit and Control  
The position lights (wing tips and tail) shall be controlled by one SPST switch. The circuit should be protected by its own fuse or circuit breaker. On the later models the individual wing tip and tail light switches with dim and bright positions shall be removed and the dimming resistors shall be disconnected.
- (4) Other Exterior Lights  
With the exception of the landing and anchor lights, any other exterior lights are not required and may be removed, if so desired.

No original NL airworthiness certificates may be issued after 8/31/48. The list of mandatory changes required prior to original certification may be obtained from CAA Aircraft Service, Washington 25, D.C., Attn: A-298.